(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum
Internationales Büro

(43) Internationales Veröffentlichungsdatum
28. Oktober 2004 (28.10.2004)

PCT

(10) Internationale Veröffentlichungsnummer
WO 2004/091862 A3

(51) Internationale Patentklassifikation[7]: B23Q 1/00, 3/18, 11/00, 16/02, 7/14

(21) Internationales Aktenzeichen: PCT/EP2004/003945

(22) Internationales Anmeldedatum:
15. April 2004 (15.04.2004)

(25) Einreichungssprache: Deutsch

(26) Veröffentlichungssprache: Deutsch

(30) Angaben zur Priorität:
103 17 341.2 15. April 2003 (15.04.2003) DE

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(81) Bestimmungsstaaten *(soweit nicht anders angegeben, für jede verfügbare nationale Schutzrechtsart)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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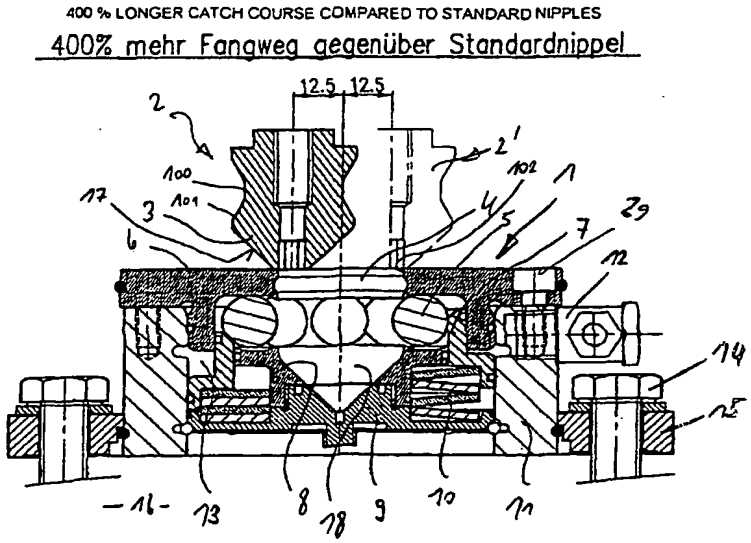
Veröffentlicht:
— *mit internationalem Recherchenbericht*

(88) Veröffentlichungsdatum des internationalen Recherchenberichts: 25. August 2005

[Fortsetzung auf der nächsten Seite]

(54) Title: QUICK-ACTION COUPLING CYLINDER COMPRISING A GUIDING DEVICE FOR THE FEED NIPPLE

(54) Bezeichnung: SCHNELLSPANNZYLINDER MIT FÜHRUNGSEINRICHTUNG FÜR DEN EINZUGSNIPPEL



(57) Abstract: The invention relates to a quick-action coupling cylinder (1) comprising a guiding device for the controlled introduction of a feed nipple (2) fixed to the lower side of a workpiece palette, into the central receiving opening in the housing of the quick-action coupling cylinder. The aim of the invention is to ensure that the feed nipple is inserted into the central receiving opening in the housing without any damage. To this end, the front side of the feed nipple comprises conical bevels (17) which are inclined towards the rear in the insertion direction, said bevels interacting with a corresponding conical recess (18), inclined in the opposite direction, in the housing of the quick-action coupling cylinder.

(57) Zusammenfassung: Die Erfindung beschreibt einen Schnellspannzylinder (1) mit Führungseinrichtung für die gesteuerte Einführung eines an der Unterseite einer Werkstückpalette befestigten Einzugsnippels (2) in die zentrale Aufnahmeöffnung im Gehäuse des Schnellspannzylinders. Um ein beschädigungsfreies Einfahren des Einzugsnippels in die zentrale Aufnahme im Gehäuse zu gewährleisten, sieht die Erfindung vor, dass die Stirnseite des Einzugsnippels in Einführrichtung nach hinten abgeschrägte Konusschrägen (17) aufweist, die mit einer zugeordneten - entgegengesetzt geschrägten - Konusaufnahme (18) im Gehäuse des Schnellspannzylinders zusammenwirken.

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Zur Erklärung der Zweibuchstaben-Codes und der anderen Abkürzungen wird auf die Erklärungen ("Guidance Notes on Codes and Abbreviations") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/003945

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B23Q1/00 B23Q3/18 B23Q11/00 B23Q16/02 B23Q7/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B23Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 202 19 340 U1 (METTCHEN, JUERGEN) 13 February 2003 (2003-02-13) figure 1	1,5
A	US 5 415 384 A (OBRIST ET AL) 16 May 1995 (1995-05-16) figures 1,2	1,5
A	WO 96/29176 A (THE BOEING COMPANY) 26 September 1996 (1996-09-26) abstract; figure 1	1
A	EP 0 459 544 A (N.V. PHILIPS' GLOEILAMPENFABRIEKEN; KONINKLIJKE PHILIPS ELECTRONICS N.) 4 December 1991 (1991-12-04) figures 2,3	4

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 February 2005	24. 05. 2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Lasa, A

Form PCT/ISA/210 (second sheet) (January 2004)

TERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/003945

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 577 847 A (SCHEDWIN ET AL) 25 March 1986 (1986-03-25) abstract; figure 3	16
A,P	EP 1 344 599 A (EROWA AG) 17 September 2003 (2003-09-17) figure 2	1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2004/003945

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see supplemental sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-13, 16-18

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

further information PCT/ISA/ 210

The International Searching Authority has determined that this international application contains multiple (groups of) inventions, namely

1. Claims 1-13, 16-18

quick-action clamping cylinder according to the preamble of claim 1, wherein the front face of the insertion nipple has conical bevels that cooperate with a corresponding – oppositely beveled - conical seat or coned point in the housing of the quick-action clamping cylinder.
Problem solved: centering correspondence between the insertion nipple and the housing of the quick-action clamping cylinder.

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2. Claims 14-15

quick-action clamping cylinder according to the preamble of claim 1, wherein a catch device for mechanical coupling of the insertion nipple with a reciprocating piston disposed inside the quick-action clamping cylinder is arranged between the insertion nipple and the reciprocating piston.
Problem solved: the quick-action clamping cylinder securely catches the insertion nipple.

3. Claims 19-22

quick-action clamping cylinder with a spring-loaded ball locking mechanism for a machine shaft that engages through the housing of the quick-action clamping cylinder.
Problem solved: high-precision positioning and fixation of a machine shaft.

TERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/EP2004/003945

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 20219340 U1	13-02-2003	NONE	
US 5415384 A	16-05-1995	DE 4307342 A1	15-09-1994
		AT 134168 T	15-02-1996
		AU 669044 B2	23-05-1996
		AU 5756294 A	15-09-1994
		BR 9400843 A	08-11-1994
		CA 2117207 A1	10-09-1994
		CN 1104141 A ,C	28-06-1995
		DE 59400115 D1	28-03-1996
		DK 614725 T3	08-07-1996
		EP 0614725 A2	14-09-1994
		ES 2083304 T3	01-04-1996
		FI 941063 A	10-09-1994
		GR 3019886 T3	31-08-1996
		HK 158896 A	30-08-1996
		JP 7132429 A	23-05-1995
WO 9629176 A	26-09-1996	AU 3331295 A	08-10-1996
		CA 2210137 A1	26-09-1996
		DE 69527309 D1	08-08-2002
		DE 69527309 T2	07-11-2002
		EP 0814939 A1	07-01-1998
		WO 9629176 A1	26-09-1996
EP 0459544 A	04-12-1991	NL 9001014 A	18-11-1991
		DE 69132440 D1	16-11-2000
		DE 69132440 T2	26-04-2001
		EP 0459544 A2	04-12-1991
		JP 4226801 A	17-08-1992
		US 5105693 A	21-04-1992
US 4577847 A	25-03-1986	SE 440618 B	12-08-1985
		AT 39075 T	15-12-1988
		DE 3475495 D1	12-01-1989
		EP 0125220 A2	14-11-1984
		JP 1907387 C	24-02-1995
		JP 6022774 B	30-03-1994
		JP 60048232 A	15-03-1985
		SE 8302028 A	13-10-1984
EP 1344599 A	17-09-2003	AT 267664 T	15-06-2004
		BR 0300417 A	17-08-2004
		CA 2419090 A1	11-09-2003
		CN 1443620 A	24-09-2003
		DE 50300015 D1	01-07-2004
		DK 1344599 T3	04-10-2004
		EP 1344599 A1	17-09-2003
		ES 2222451 T3	01-02-2005
		HR 20030106 A2	31-12-2003
		JP 2003266260 A	24-09-2003
		MX PA03002062 A	22-09-2003
		NO 20031101 A	12-09-2003
		PL 359088 A1	22-09-2003
		PT 1344599 T	30-09-2004
		SG 102706 A1	26-03-2004
		US 2003168795 A1	11-09-2003